Fig.1

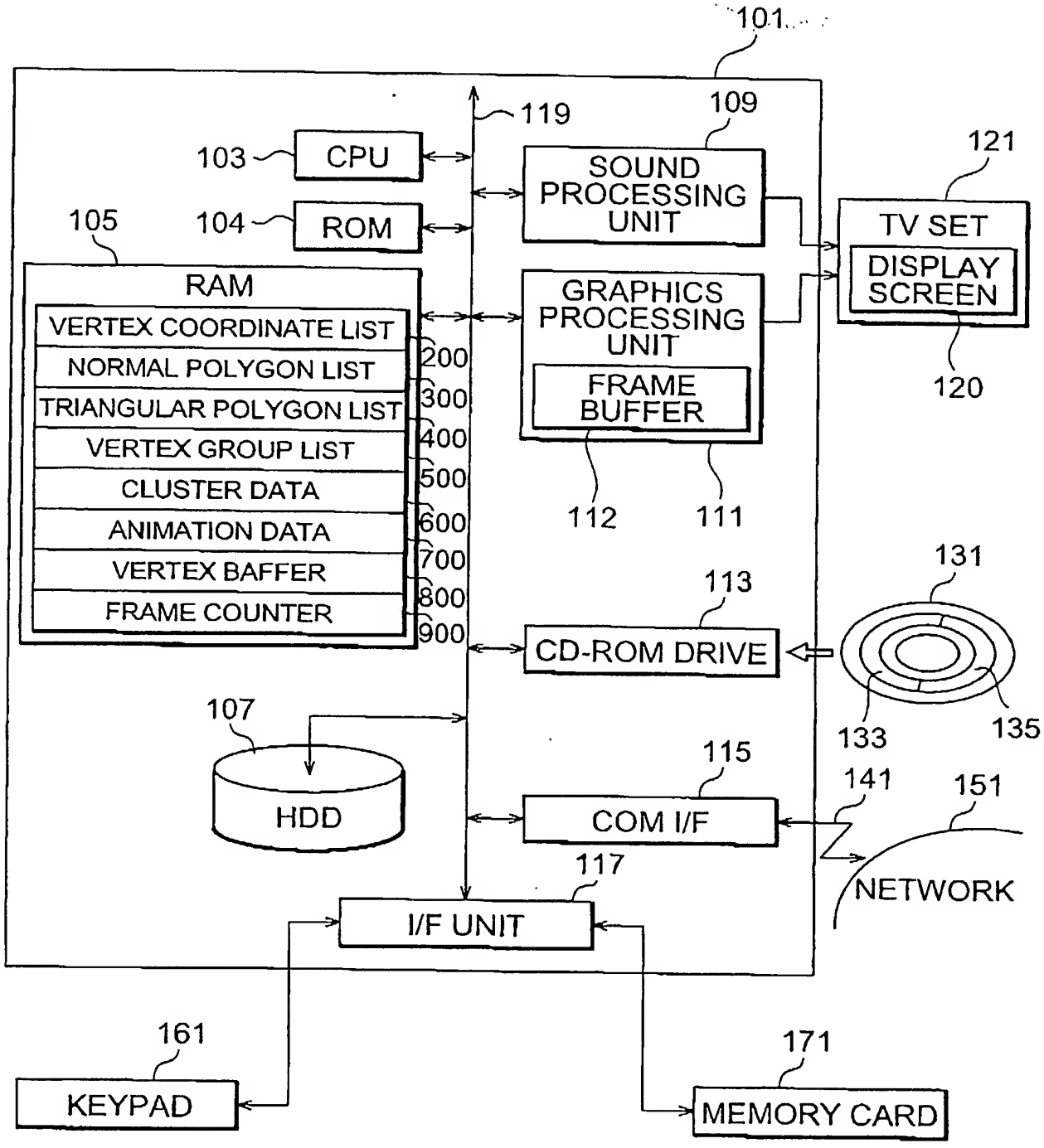
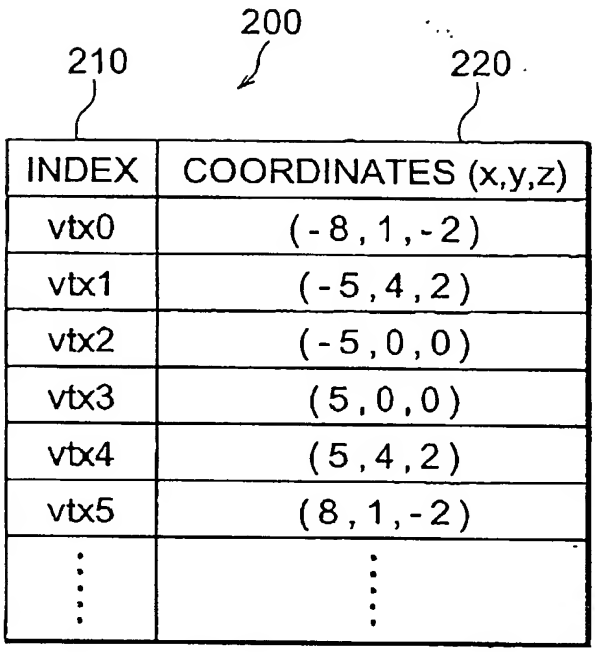
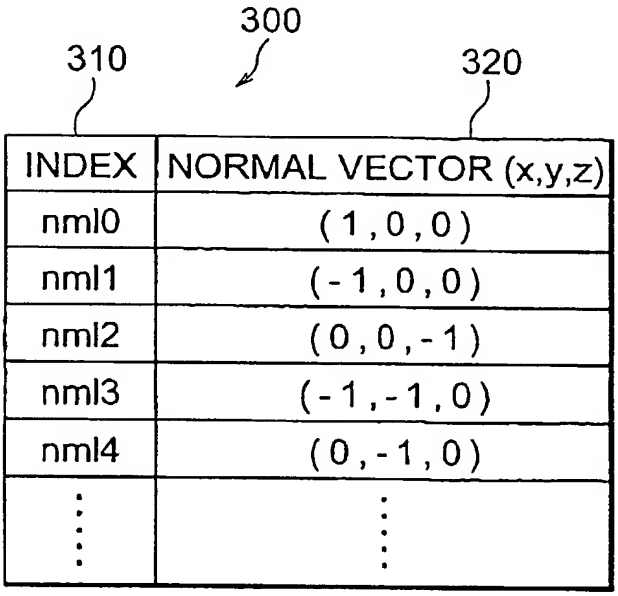

101
119
109
121
103
CPU
SOUND PROCESSING UNIT
TV SET
DISPLAY SCREEN
105
104
ROM
RAM
GRAPHICS PROCESSING UNIT
FRAME BUFFER
120
VERTEX COORDINATE LIST
NORMAL POLYGON LIST
TRIANGULAR POLYGON LIST
VERTEX GROUP LIST
CLUSTER DATA
ANIMATION DATA
VERTEX BAFFER
FRAME COUNTER
200
300
400
500
600
700
800
900
112
111
131
113
CD-ROM DRIVE
133
135
107
HDD
115
141
151
COM I/F
NETWORK
117
I/F UNIT
161
171
KEYPAD
MEMORY CARD

Fig.2



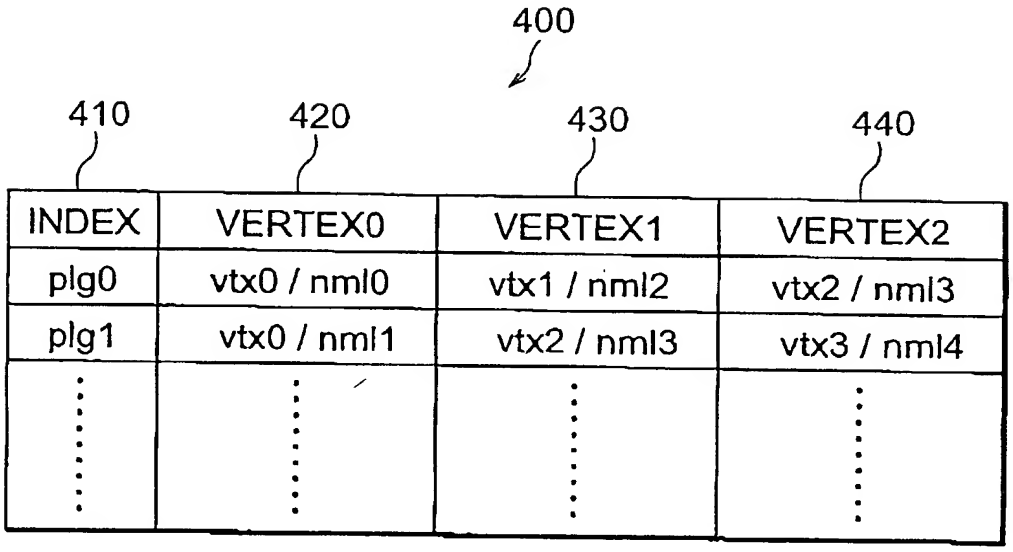
INDEX	COORDINATES (x,y,z)
vtx0	(-8,1,-2)
vtx1	(-5,4,2)
vtx2	(-5,0,0)
vtx3	(5,0,0)
vtx4	(5,4,2)
vtx5	(8,1,-2)
⋮	⋮

Fig.3



INDEX	NORMAL VECTOR (x,y,z)
nml0	(1,0,0)
nml1	(-1,0,0)
nml2	(0,0,-1)
nml3	(-1,-1,0)
nml4	(0,-1,0)
⋮	⋮

Fig.4



INDEX	VERTEX0	VERTEX1	VERTEX2
plg0	vtx0 / nml0	vtx1 / nml2	vtx2 / nml3
plg1	vtx0 / nml1	vtx2 / nml3	vtx3 / nml4
⋮	⋮	⋮	⋮

Fig.5

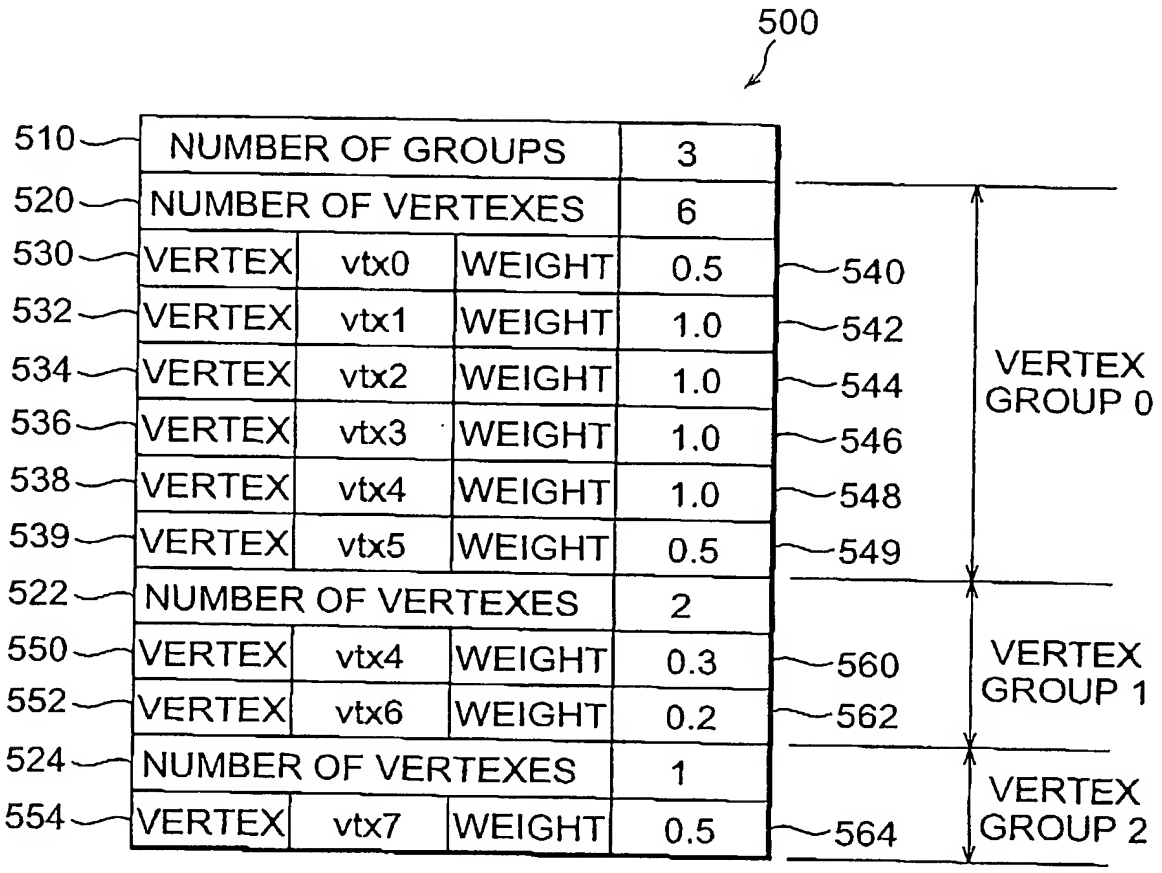

500
510
NUMBER OF GROUPS
3
520
NUMBER OF VERTEXES
6
530
VERTEX vtx0 WEIGHT
0.5
540
532
VERTEX vtx1 WEIGHT
1.0
542
534
VERTEX vtx2 WEIGHT
1.0
544
536
VERTEX vtx3 WEIGHT
1.0
546
538
VERTEX vtx4 WEIGHT
1.0
548
539
VERTEX vtx5 WEIGHT
0.5
549
VERTEX GROUP 0
522
NUMBER OF VERTEXES
2
550
VERTEX vtx4 WEIGHT
0.3
560
552
VERTEX vtx6 WEIGHT
0.2
562
VERTEX GROUP 1
524
NUMBER OF VERTEXES
1
554
VERTEX vtx7 WEIGHT
0.5
564
VERTEX GROUP 2

Fig.6

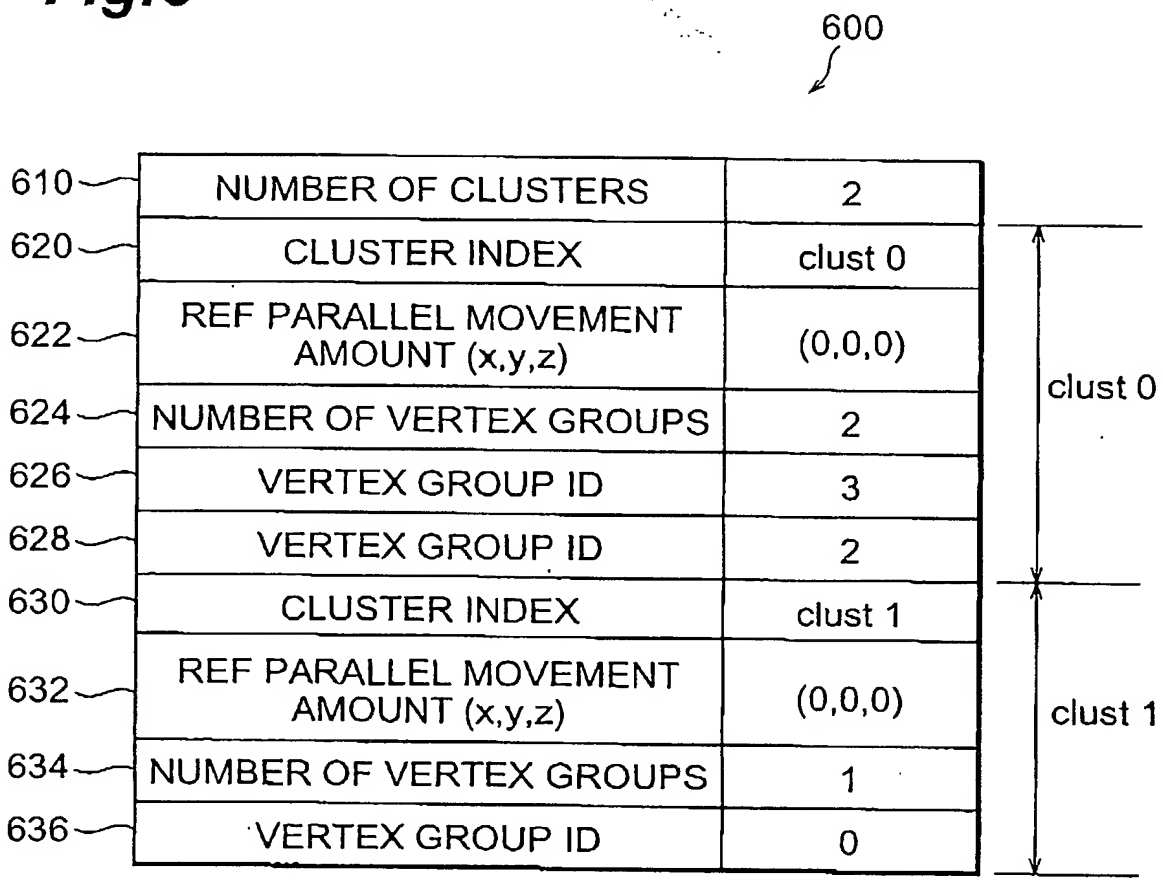

600
610
NUMBER OF CLUSTERS
2
620
CLUSTER INDEX
clust 0
622
REF PARALLEL MOVEMENT AMOUNT (x,y,z)
(0,0,0)
624
NUMBER OF VERTEX GROUPS
2
626
VERTEX GROUP ID
3
628
VERTEX GROUP ID
2
630
CLUSTER INDEX
clust 1
632
REF PARALLEL MOVEMENT AMOUNT (x,y,z)
(0,0,0)
634
NUMBER OF VERTEX GROUPS
1
636
VERTEX GROUP ID
0
clust 0
clust 1

Fig.7A

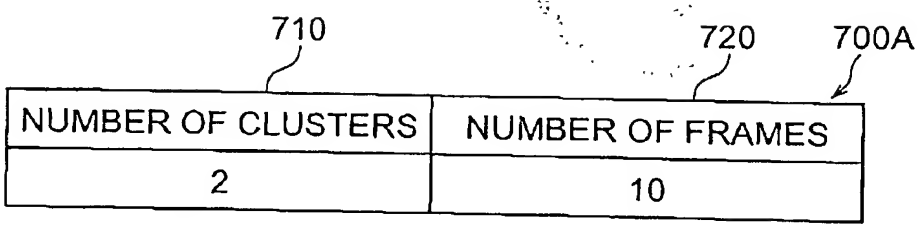

710
720
700A
NUMBER OF CLUSTERS
NUMBER OF FRAMES
2
10

Fig.7B

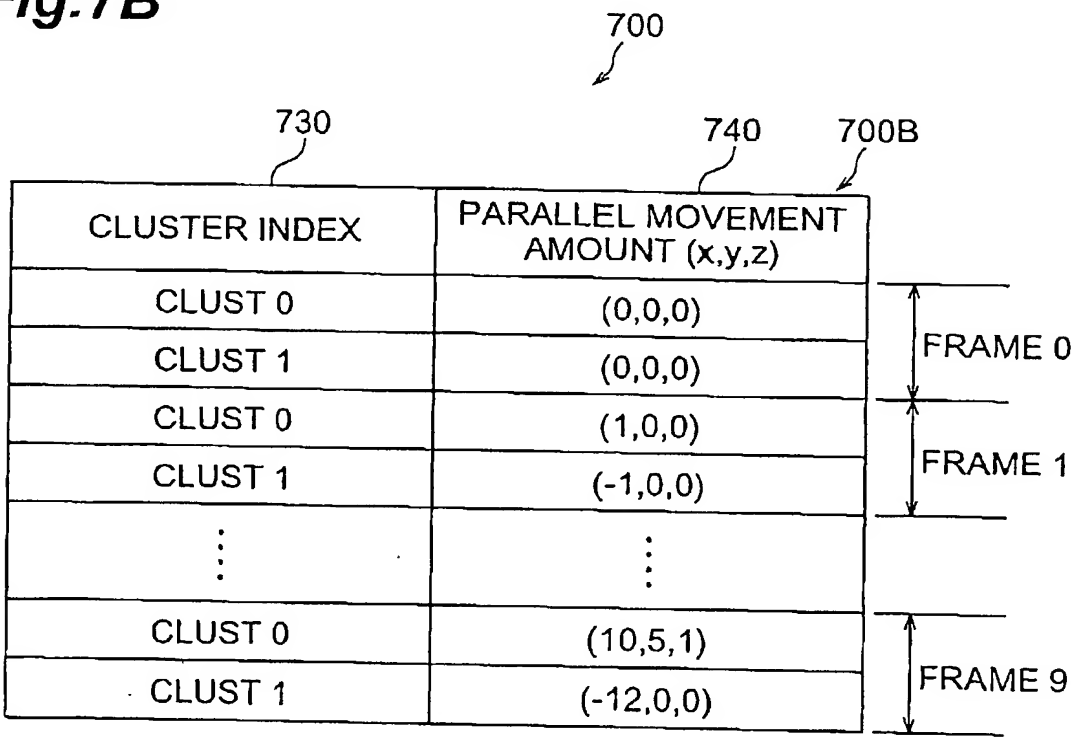

700
730
740
700B
CLUSTER INDEX
PARALLEL MOVEMENT AMOUNT (x,y,z)
CLUST 0
(0,0,0)
CLUST 1
(0,0,0)
FRAME 0
CLUST 0
(1,0,0)
CLUST 1
(-1,0,0)
FRAME 1
CLUST 0
(10,5,1)
CLUST 1
(-12,0,0)
FRAME 9

Fig.8A

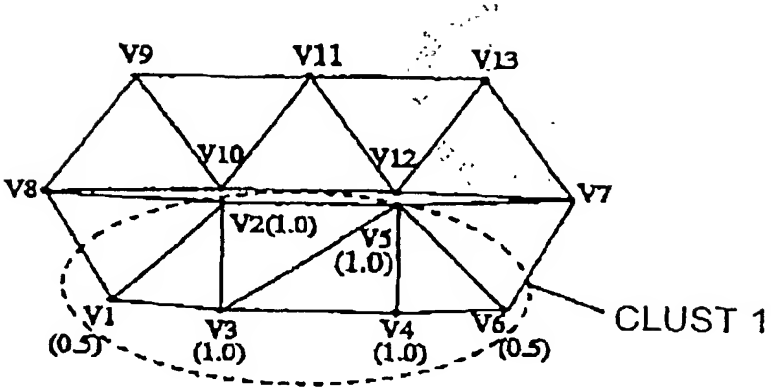


Fig.8B

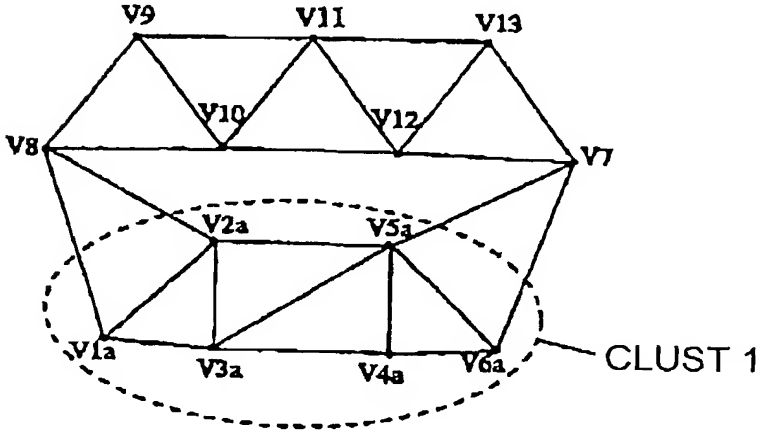


Fig.8C

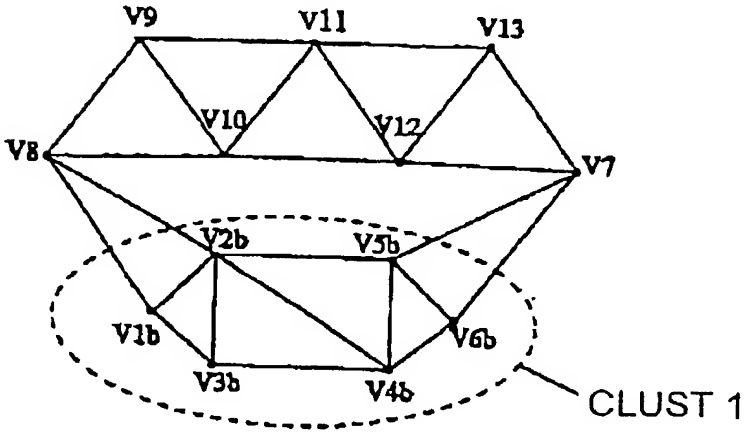


Fig.9

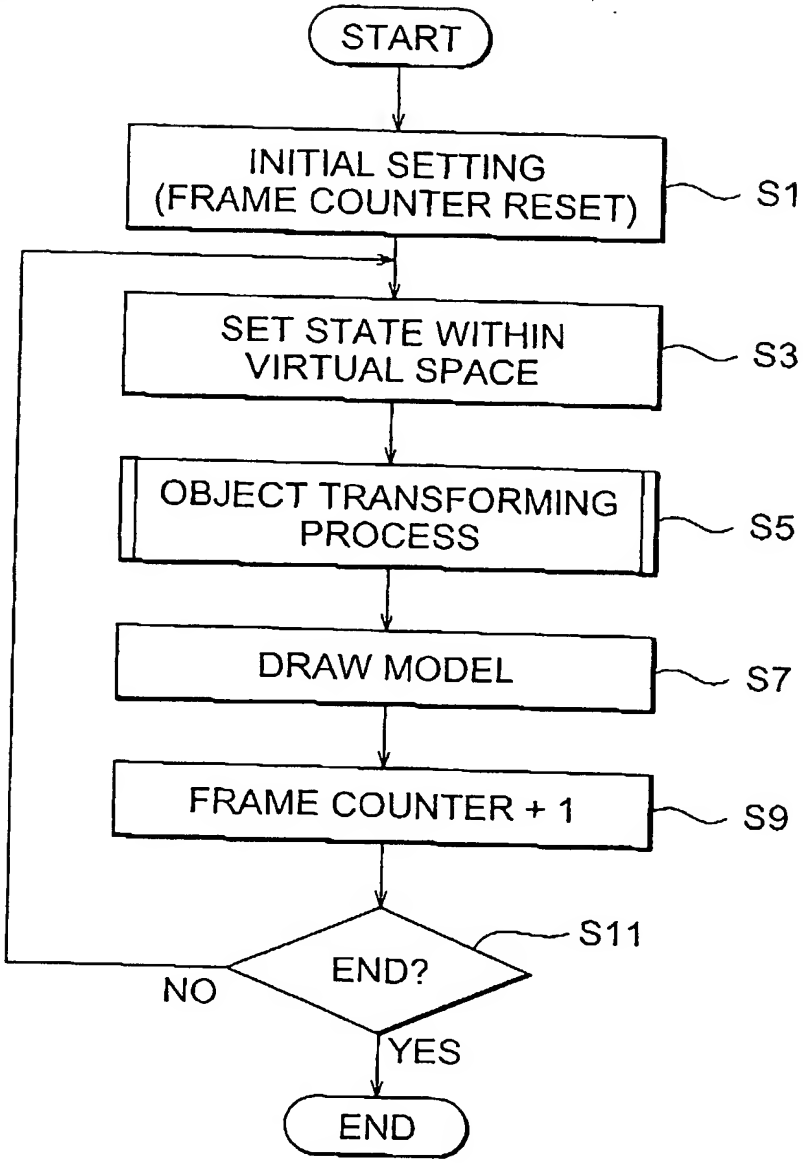

START
INITIAL SETTING (FRAME COUNTER RESET)
S1
SET STATE WITHIN VIRTUAL SPACE
S3
OBJECT TRANSFORMING PROCESS
S5
DRAW MODEL
S7
FRAME COUNTER + 1
S9
END?
S11
NO
YES
END

Fig.10

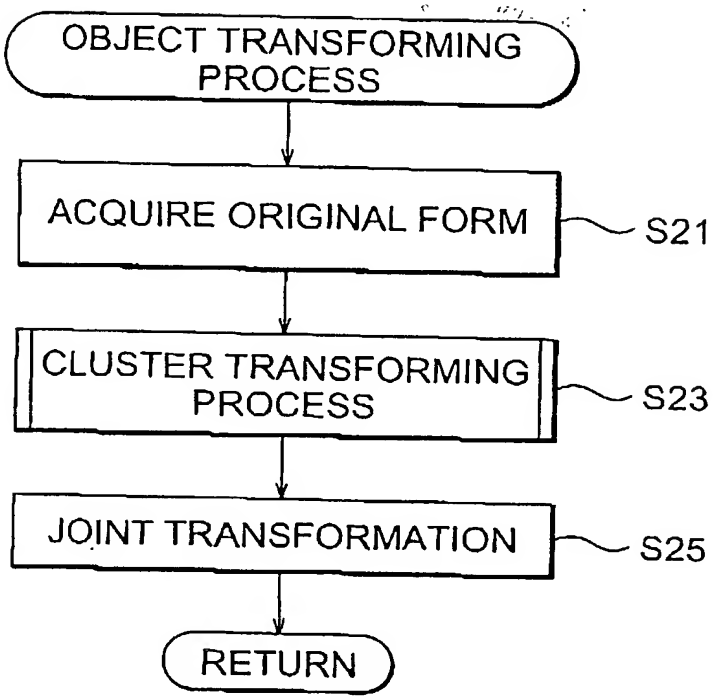

OBJECT TRANSFORMING PROCESS
ACQUIRE ORIGINAL FORM
S21
CLUSTER TRANSFORMING PROCESS
S23
JOINT TRANSFORMATION
S25
RETURN

Fig.11

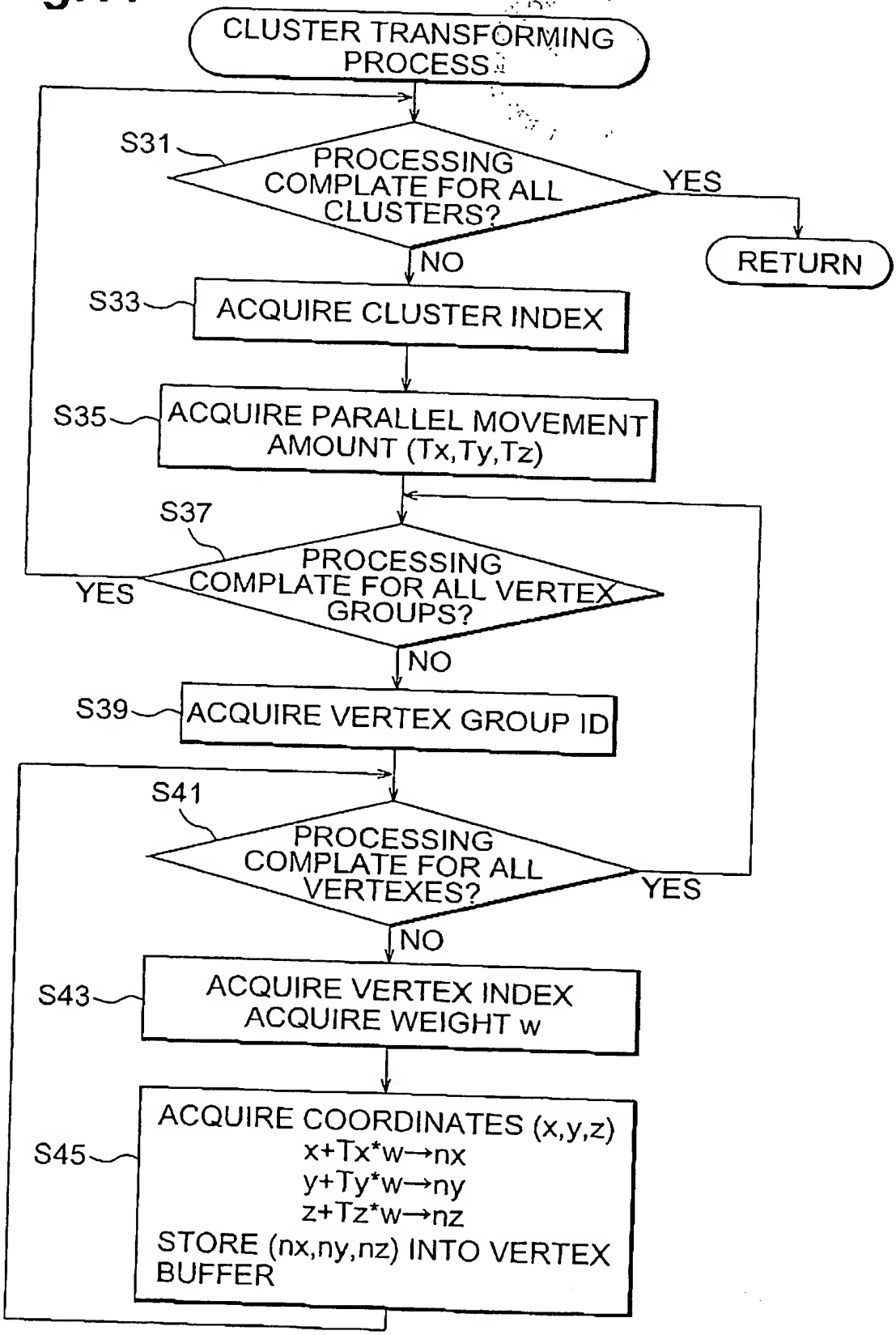

CLUSTER TRANSFORMING PROCESS
S31
PROCESSING COMPLATE FOR ALL CLUSTERS?
YES
RETURN
NO
S33
ACQUIRE CLUSTER INDEX
S35
ACQUIRE PARALLEL MOVEMENT AMOUNT (Tx,Ty,Tz)
S37
PROCESSING COMPLATE FOR ALL VERTEX GROUPS?
YES
NO
S39
ACQUIRE VERTEX GROUP ID
S41
PROCESSING COMPLATE FOR ALL VERTEXES?
YES
NO
S43
ACQUIRE VERTEX INDEX
ACQUIRE WEIGHT w
S45
ACQUIRE COORDINATES (x,y,z)
x+Tx*w→nx
y+Ty*w→ny
z+Tz*w→nz
STORE (nx,ny,nz) INTO VERTEX BUFFER

Fig.12

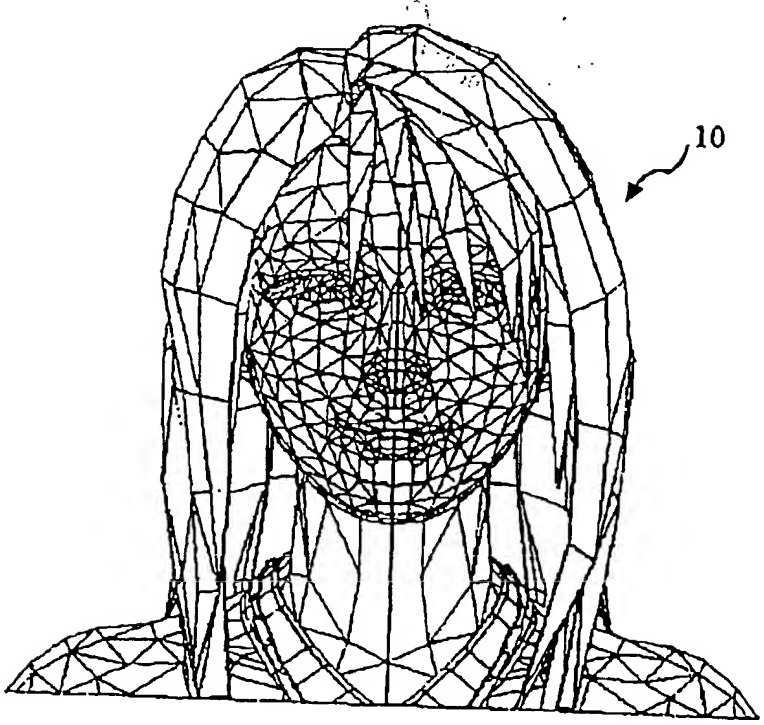


Fig.13

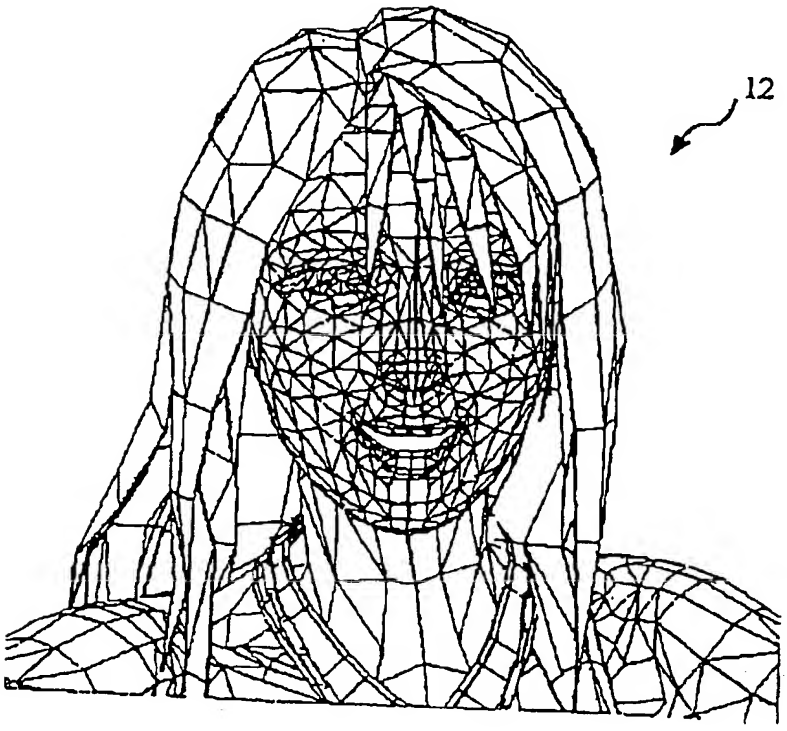


Fig.14

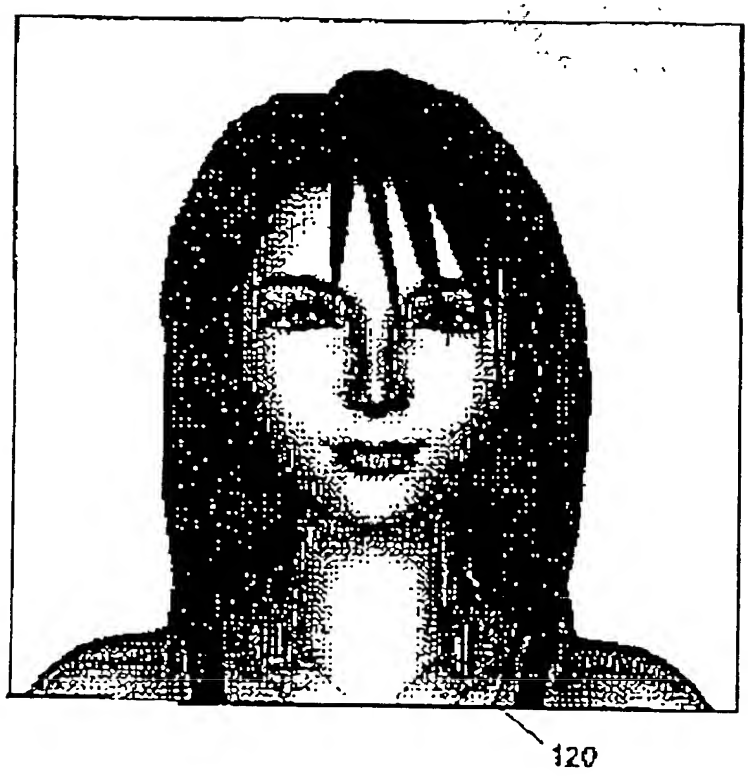


Fig.15